Questions and Answers for the 1999 NTI

The EPA's Office of Air Quality Planning and Standards (OAQPS) is using the National Toxics Inventory (NTI) to support analyses required by the Clean Air Act (CAA) and Government Performance and Results Act (GPRA) that depend on a high-quality, comprehensive hazardous air pollutant (HAP) emissions inventory. As such, the NTI is a critical component of the entire national Air Toxics Program (as described in EPA's July 19, 1999 Federal Register notice, 64 FR 38706). A recent example of its use is the national-scale assessment being performed as part of EPA's National Air Toxics Assessment (NATA) activities.

This document presents questions and answers on the compilation of the 1999 NTI. State and local agencies and tribes are asked to voluntarily supply HAP emission inventory data to the EPA. If state and local agencies are unable to provide HAP emission inventory data to the EPA, then the EPA will prepare default emission inventory data for the 1999 NTI, and use these data to support assessments which will inform regulatory decision making.

What is the history of the NTI?

The Emission Factor and Inventory Group (EFIG) in the OAQPS is responsible for compiling the NTI. The EFIG recently compiled the 1996 NTI and is beginning efforts to compile the 1999 NTI. The NTI is a national repository of inventory data and estimated emissions for HAPs. The 1996 NTI contains estimates of the 188 HAPs emitted from stationary and mobile source categories. The NTI will be updated every 3 years (1999, 2002, 2005, etc.). We are continually trying to upgrade the quality of the NTI. In order to improve the NTI for 1999, we need better pollutant and source characterization.

What sources emit HAPs?

HAPs are emitted by a variety of source categories that include stationary major and area sources, other stationary sources, and mobile sources. Major and area source categories are defined in Section 112 of the Clean Air Act. (www.epa.gov/ttn/uatw/pollsour.html)

- Major sources are stationary sources that emit or have the potential to emit 10 tons per year or more of any listed HAP or 25 tons per year or more of a combination of listed HAPs. The NTI includes facility data for all major sources of HAPs. Examples of major sources include electric utility plants, chemical plants, steel mills, oil refineries, and hazardous waste incinerators. These sources may release air toxics from equipment leaks, when materials are transferred from one location to another, or during discharge through emissions stacks or vents. (www.epa.gov/ttn/uatw/pollsour.html)

- Area sources are stationary sources that emit or have the potential to emit less than 10 tons per year of any individual HAP or less than 25 tons per year of a combination of HAPs. The NTI includes individual facility data for some area sources and aggregated emission estimates at the county level for the remaining

area sources. Area sources are regulated under toxics provisions in the Clean Air Act. Examples of area sources include neighborhood dry cleaners and gas stations. Though emissions from individual area sources are often relatively small, collectively their emissions can be of concern particularly where large numbers of sources are located in heavily populated areas. (www.epa.gov/ttn/uatw/pollsour.html)

- Other stationary sources are sources that may be more appropriately addressed by other programs rather than through regulations developed under certain air toxics provisions (sections 112 or 129) in the Clean Air Act. Examples of other stationary sources include wildfires and prescribed burning whose emissions are being addressed through the burning policy agreed to by EPA and USDA.

- Mobile source categories include on-road vehicles, non-road 2- and 4- stroke and diesel engines, off road vehicles, aircraft, locomotives, and commercial marine vessels.

The NTI is designed to include emissions of all HAPs from all outdoor sources. State and local agencies and tribes are being requested to provide any and all of these data for their jurisdictions.

What are the components of the NTI?

The various CAA and GPRA needs for air toxic data cover major, area, and mobile sources and include estimates of emissions at the national, regional, and county levels, and facility-specific and process-specific emission data suitable for use as input to computerized atmospheric dispersion models. The NTI is thus designed to provide a model-ready emissions inventory of all anthropogenic sources of HAPS to facilitate comprehensive dispersion and exposure modeling.

The NTI contains HAP emission estimates for point, non-point, and mobile source categories. Point sources are further identified as either major or area, dependent on the magnitude of their emissions. Major sources, as defined in CAA Section 112(a), are those facilities having the potential to emit 10 tons or more of a single HAP or 25 tons or more than one HAP per year. Area sources are stationary sources that are not major and thus emit less than 10 tons of a single HAP or less than 25 tons of multiple HAPs. Non-point source categories include area and other stationary source categories. Mobile sources include on-road and non-road categories.

We would prefer to model all stationary sources as point sources. Therefore, to the extent it is possible, we encourage State and local agencies to provide facility-specific emissions data for all point sources, regardless of whether they are classified as major or area. At a minimum, however, we encourage you to report facility-specific emissions data for all known major sources, including both sources for which Maximum Achievable Control Technology (MACT) standards will be developed and those which are not currently listed for MACT standard development. We

also encourage you to report facility-specific emissions data for all MACT source categories regardless of whether a facility is classified as major or area. The NTI will retain all facility-specific data as point sources, regardless of the magnitude of the emissions, to facilitate more comprehensive assessments.

To evaluate EPA's progress in reducing air toxic emissions through the MACT standards and to identify sources that may be modeled as part of residual risk assessments, operations within facilities that are subject to MACT standards are identified in the NTI by MACT codes. MACT codes are assigned at the process level or at the site level, e.g., the MACT code for MWC is assigned at the site level whereas the MACT code petroleum refinery catelytic cracking is assigned at the process level. The EPA requests state and local agencies and tribes to include MACT codes as part of their submittal of 1999 HAP emission inventory data. If state and local agencies and tribes do not include MACT codes in their inventories, then the EPA will assign MACT codes.

For point sources, the NTI contains estimates of facility-specific HAP emissions and their source-specific parameters such as location (FIPs codes and latitude/longitude), emissions, and facility characteristics (stack height, exit velocity, temperature, etc.)

Area and other stationary sources not included in the point source inventory are reported in the NTI as non-point stationary source category aggregates at the county level. Mobile sources are reported in the NTI as aggregates at the county level.

What data elements are in the NTI?

Table 1 presents a summary of key point source data elements. A detailed list of all NTI data elements is available in the National Emission Inventory (NEI) Input Format, Version 2.0. The NEI Input Format, Version 2.0 will be available in November 2000 at the following web address.

www.epa.gov/ttn/chief

What pollutants are included in the NTI?

Section 112(b) of the CAA contains a list of 188 HAPs. HAPs are generally defined as those pollutants that are known or suspected to cause serious health problems, including cancer. Section 112(b) of the Clean Air Act currently identifies a list of 188 pollutants as HAPs (www.epa.gov/ttn/uatw/188polls.html). EPA's UATW web site presents more information on HAPs, their effects, and EPA's programs to reduce HAPs. (www.epa.gov/ttn/uatw/basicfac.html)

The NTI includes emissions data for all 188 HAPs. In addition to numerous specific chemical species and compounds, the list of 188 HAPs includes several compound groups (e.g., individual metals and their compounds, polycyclic organic matter (POM), and glycol ethers).

Many of the uses of the NTI depend upon data for individual compounds within these groups rather than aggregated data on each group as a whole. Table 2 lists all of the specific pollutants and compound groups included in the 1996 NTI along with their Chemical Abstract Services (CAS) numbers (for individual compounds).

What pollutant issues did we encounter in compiling the 1996 NTI data?

The major issues that we encountered in compiling the 1996 NTI are associated with the reporting of information on HAP groups. The CAA lists seventeen of the 188 HAPs as groups of substances, including, for example, specific metal compounds, polycyclic organic matter (POM), and glycol ethers. To the extent that only aggregated emissions were reported for each of these HAP groups, we had to make various assumptions that introduced significant uncertainties in the use of the NTI data for air quality modeling and risk characterization. Uncertainties in air quality modeling arise because individual compounds within some of the HAP groups (e.g., mercury compounds) have substantially different fate and transport characteristics which strongly effect the modeling results. For example, for the Great Waters program, it is important to inventory the different species of mercury, because they do not all transport or react the same once they are in the atmosphere. In particular, organic mercury transports long distances as small particulate matter, while inorganic mercury reacts as a gas in the atmosphere. Further, uncertainties in risk characterization arise because the HAP exposures and associated human health effects can vary enormously among the specific compounds within many of the HAP groups. For example, some compounds within the POM group are relatively non-toxic, while others are highly potent carcinogens. Hexavalent chromium is a known carcinogen, whereas trivalent chromium is an essential nutrient for which data are inadequate to determine potential carcinogenicity. In compiling the 1999 NTI, we are therefore encouraging improvements in reporting the HAP groups, so as to reduce uncertainties and potential overestimation of risk in future NTI-based assessments..

How should I inventory pollutants for the 1999 NTI?

For state or local agencies or tribes that choose to provide emission data for the 1999 NTI, emissions should be reported for specific compounds, both for individual HAP species and for pollutants within compound groups. CAS numbers are preferred to identify pollutants reported to the EPA. If you cannot report pollutants using CAS numbers, aggregated compound group emissions will be accepted. If you report emissions as groups of compounds, then the EPA will use simplifying assumptions regarding speciation within the group in order to use these data as inputs to models.

Recommendations for reporting data for specific groups of compounds are summarized below in a hierarchy of most preferred method to least preferred. For pollutant groups, only one reporting strategy per HAP group per source should be used. Simultaneous use of more than one reporting strategy (e.g., reporting both individual chromium compounds and total chromium for the same source) will result in the same emission being counted twice resulting in a potential overestimation of emission levels and risk. CAS numbers referenced to in the text are also shown in Table 2 with their associated pollutant names.

Metal and cyanide groups:

1 Report emissions and associated CAS numbers of all individual metal and cyanide compounds; e.g., report emissions and associated CAS numbers of arsenic oxide, lead arsenate, etc., rather than emissions of arsenic compounds as a whole. All individual compounds should be reported as the mass of the total compounds, not just the metal within the compound.

2. If individual metal compounds cannot be reported, a less preferred method for chromium, lead, mercury and nickel is to separately report two forms of widely-varying toxicity. If you use this approach, report <u>only</u> the mass of emissions of the metal, not of the entire metal compound.

- Chromium – Separate chromium compounds into trivalent (CAS #1606583) and hexavalent chromium (CAS #18540299).
- Lead – Separate lead compounds into organic and inorganic.
- Mercury – Separate mercury compounds into organic (CAS #22967926) and inorganic (CAS #7439976).
- Nickel - Separate nickel compounds into nickel subsulfide (CAS #12035722) and other nickel (CAS #7440020).
- For all other metal and cyanide groups, report total emissions of the group in terms of the mass of the metal or cyanide alone, and report under the CAS number of the metal or cyanide.

3. Alternatively, but far less preferred, report total emissions of the group in terms of mass of <u>total</u> emissions, and report under the pollutant group number for "metal and compounds" or "cyanide and compounds". <u>Do not include metals or cyanide already reported using the more preferred methods above</u>, in order to avoid the possibility of double counting emissions.

POM : Clearly identify what you inventory as POM.

1. Report emissions and associated CAS numbers of as many individual POM compounds as possible, rather than as total PAH or total POM. Most important to report individually are the 7-PAH compounds listed in Table 3. We also encourage the reporting of other individual POM compounds for which cancer assessments are available (also listed in Table 3).
2. If you cannot report all individual PAHs, then report 7-PAH as a subgroup.
3. If you cannot report emissions of 7-PAH, then report total POM (total POM includes total PAH). Since naphthalene is listed individually as a HAP, do not include any individually-reported naphthalene as total POM.
4. If you follow any other scheme than one listed in this hierarchy, clearly identify what it is.

Dioxins/Furans: Clearly identify what you inventory as dioxins and furans.

1. Report mass emissions and associated CAS numbers of all individual congeners of both chlorinated dibenzodioxins (CDDs) and chlorinated dibenzofurans (CDFs).
2. If you cannot report individual CDD and CDF congeners, report dioxins and furans as 2,3,7,8-tetrachlorodibenzodioxin (TCDD) toxic equivalents (TEQ) under the HAP name "dioxins/furans as TEQ". (Note: Although the CAA specifically lists only 2,3,7,8-TCDD as a HAP, other CDDs and CDFs qualify as HAPs within the POM group. Because some of these other congeners are also potent carcinogens, EPA will use the TEQ approach to evaluate CDDs and CDFs as a group.). Do not include dioxins/furans in the reporting of POM emissions.

3. If you cannot report emissions using the TEQ approach, report individual congener emissions where possible and report any remaining emissions as total "dioxins" or total "dibenzofurans".

Glycol Ethers:

1. Report emissions for individual glycol ethers with their associated CAS numbers. Use the Toxic Release Inventory (TRI) guidance on glycol ethers to identify compounds that are glycol ethers. This guidance can be found at the following address:
   http://www.epa.gov/opptintr/tri/glycol.pdf .
   Note that, historically, many compounds have been mistakenly included in the glycol ethers compound group. Table 4 identifies compounds that were reported to EPA as glycol ethers in the development of the 1996 NTI that are not actually glycol ethers and should not be included in 1999 NTI reporting.
2. If you cannot report individual glycol ether emissions, report total emissions of glycol ethers as a group under "glycol ethers".

Xylenes and Cresols:

1. Report emissions for individual xylene and cresol isomers with their associated CAS numbers. Do not report any emissions for total xylenes or cresols to avoid double counting.
2. If you cannot report individual emissions of xylenes or cresols, report total emissions of xylenes or cresols as a group under "xylenes (mixture of o, m, and p isomers)" (CAS #1330207) or "cresols/cresylic acids".

What are other common errors that I should avoid in developing my 1999 HAP emission inventory?

Data gaps in the 1996 state HAP point source inventory included: (1) entire counties missing from the state databases; (2) missing emission sources; (3) lack of stack parameters; (4) lack of facility location data [latitude/longitude or Universal Transverse Mercator (UTM) coordinates), county and state FIPS codes]; and (5) use of consistent units. Other sources of errors in the 1996 NTI included inclusion of closed facilities, incorrect facility location data, double counting between state/MACT/TRI data, missing technical data fields, erroneous data, errors in calculations, transcription errors, lack of information on how emission estimates were made, and assignment of MACT codes.

One common error deals with consistent units. Obviously whether an emission rate is reported in grams per second or in pounds per year or tons per year makes a big difference in estimated exposures and ultimately risks, but often it is not clear what the units associated with the rates are. The same is true for the emission characteristics such as stack height and exit velocity.

Location errors including incorrect or missing latitude/longitude and incorrect or missing county FIPS codes require resolution for modeling. Obviously if the location of a facility is reported incorrectly or is missing, estimating exposures and ultimately risks is inaccurate. Approximately 4,000 of the 58,000 facilities in the draft 1996 NTI did not have latitude/longitude coordinates. The EPA resolved missing latitude/longitude coordinates for more than 1,000 of the

4,000 facilities in the 1996 NTI. Most of the remaining 3,000 facilities that lacked latitude/ longitude coordinates are small facilities with emissions less than 10 tons (many states included facilities in their inventories that emit less than 10 tons/year of HAPs). Approximately 200 facilities in the draft 1996 NTI did not identify the county in which a facility was located. The EPA assigned county codes to all facilities except for 87 facilities that were portable in Colorado and Idaho in the 1996 NTI.

What is the priority for contributing data to the 1999 NTI?

For State or local agencies or tribes that choose to provide data for the 1999 NTI, the most important source category for which EPA needs data is facility-specific point source emissions, including as a minimum all major sources of HAPs, and also including as many point sources in the area classification as possible. Also, data submittals are encouraged for all source categories including county-level aggregates of emissions from non-point stationary and mobile sources. NTI mobile sources include on road and nonroad categories.

Are there minimum thresholds for reporting emissions in the NTI?

No. There are no minimum reporting thresholds because the NTI will be used for assessing risk and very small amounts of some HAPs may nevertheless contribute substantially to risks, (e.g., fractions of pounds of dioxin).

How will data in the NTI be used in residual risk assessments? Why should you provide accurate and complete data to the NTI?

The National Toxics Inventory is envisioned to contain the most detailed and accurate emissions and source data available to conduct residual risk assessments. The data will be used in various dispersion, exposure , and risk assessment models along with information to describe the area in the vicinity of the emitting facility (e.g., how population is distributed and related demographic, terrain, size and location of water bodies, land use, etc.). The goal is the most accurate risk assessment using all available data to the extent possible. The more complete and accurate these data are, the less EPA resources will be needed to fill data gaps, and of more relevance to states, the less EPA will call or knock on your door hunting data.

Why should you use Source Classification Codes (SCC) in your HAP emission inventory?

This should be done to enable users of NTI data to identify and retrieve relevant data on the emission sources that are associated with a Maximum Achievable Control Technology (MACT) source category. For example, large chemical facilities that have some process subject to the Hazardous Organic NESHAP have many process and emission points. Even with a map of the facility that identifies the process and shows how it is distributed about the facility, it is not possible to determine which of the emission sources are subject to the standard without the correct SCC.

Why should I provide both actual and allowable emission rates?

Actual emission rates are what the facility or emission source is expected to emit. They may frequently exceed this rate. The allowable emission rate bounds what the facility can emit under the regulation. Using both estimates allows a more representative assessment of potential affects on residents and environment in the vicinity of the facility, helping address future growth.

What residual risk source categories does EPA expect to be working on in the coming year?

EPA is planning to extract data from the NTI to conduct residual risk assessments on the following source categories:

Aerospace
Shipbuilding
Wood Furniture
Marine Vessel Loading
Printing and Publishing
Medical Waste Incinerators
Municipal Waste Combustion
Polymers and Resins I, II, and IV

Paying particular attention to these source categories when you are providing data for the NTI submittal will alleviate the need for you to respond to future site-specific data requests.

What are the residual risk source categories for which EPA is currently using 1996 NTI data?

Secondary Lead Smelters
Magnetic Tape Production
Perchloroethylene Dry Cleaners
Chrome Electroplates (hard and decorative)
Coke Ovens and By-Product Plants
Commercial Sterilizers
HON
Petroleum Refineries
Gasoline Distribution
Polymers and Resins II
Halogenated Solvent Cleaners

What is the methodology EPA will use to compile the 1999 NTI?

The EPA prefers to use state and local HAP inventory data. Similar to the process used to develop the 1996 NTI, the EPA will prepare the 1999 NTI using various data sources. The five primary sources of NTI data are:

(1) state and local agency HAP inventories,
(2) existing databases related to OAQPS Maximum Achievable Control Technology (MACT) programs,
(3) TRI data,
(4) estimates developed using mobile source methodology developed by experts in EPA's Office of Mobile Sources, and
(5) area source emission estimates generated using emission factors and activity data.

The 1996 NTI will provide a starting place for gap filling any emissions sources in the 1999 NTI. The 1996 NTI data files and documentation are available for all emission estimates in the 1996 NTI at the following ftp address.

ftp://ftp.epa.gov/EmisInventory/nti_96/

The 1996 NTI documentation is also available for all emission estimates in the 1996 NTI at the following web address.

www.epa.gov/ttn/chief/

Point sources: To compile the 1999 point source data, the EPA will first use HAP emissions data from state and local agencies. The EPA will then evaluate and supplement the state and local data with data gathered by OAQPS during the development of MACT standards and with TRI data. For states that do not submit 1999 HAP inventory data to EPA and for sources not included in state and local data, the EPA will supplement the data to produce a complete draft model-ready national 1999 inventory. The EPA will distribute additional MACT facility data supplied by OAQPS engineers that was received after March 1, 1999 for state and local agencies to use in preparing their 1999 HAP inventories.

Non-Point Stationary Sources: To compile the 1999 non-point stationary source data, the EPA will first use HAP emission data from state and local agencies. Then the EPA will evaluate and supplement the state and local data sets with area source data gathered during the development of MACT standards. MACT source categories may be entirely area sources or have an area source component. For non-point stationary source categories that are not included in State and local databases or in MACT area source databases, the EPA will generate emission estimates by using activity data and emission factors and then allocate the estimates from the national, state, or regional level to the individual counties using surrogate data such as population, Standard Industrial Classification (SIC) code employment, etc.

Mobile Sources: To compile the 1999 mobile source data, the EPA will first use HAP emission data from state and local agencies. Then the EPA will evaluate and supplement the state and local data sets with emissions compiled using emission estimation methodology developed by the EPA's Office of Mobile Sources (OMS).

The 1999 National Emission Inventory (NEI) Data Incorporation Plan provides a detailed methodology that EPA will use to compile the 1999 NTI. (www.epa.gov/ttn/chief)

How shall I send my 1999 HAP inventory data to the EPA?

State and local agencies and tribes that choose to contribute data to the 1999 NTI should submit their data electronically to the EPA using the NEI Input Format, Version 2.0.

What is the schedule of the 1999 NTI?

- June 1, 2001 - State and local agencies will submit 1999 HAP emission inventories to EPA
- October 1, 2001 - EPA prepares draft 1999 Version 1.0 NTI
- October 1, 2001 - February 1, 2002 - External review of draft 1999 Version 1.0 NTI
- February 1, 2002 - comments on draft 1999 submitted to EPA
- June 1, 2002 - Version 1.0 1999 NTI
- June 1, 2002 - State and local agencies will submit 1999 HAP emission inventories to EPA
- October 1, 2002 - EPA prepares draft 1999 Version 2.0 NTI
- October 1, 2002 - February 1, 2003 - External review of draft 1999 Version 2.0 NTI
- February 1, 2003 - comments on draft 1999 submitted to EPA
- June 1, 2002 - Version 2.0 1999 NTI

How can I access the 1996 NTI?

The 1996 NTI modeling files and documentation are available for all emission estimates in the 1996 NTI at the following ftp address.

ftp://ftp.epa.gov/EmisInventory/nti_96/

1996 summary NTI data are available to the public via AIRSData at the following web site.

www.epa.gov/AIRSData

What are the uses of the NTI?

The NTI is a critical component of EPA's national Air Toxics Program, and is used to support analyses required by the CAA and GPRA. Specific CAA requirements for which air toxics inventory data are important include:

- Sections 112 (b) and (c) - evaluation of pollutant and source category delisting petitions
- Sections 112(d) and (c)(6) - development of Maximum Achievable Control Technology (MACT) and Generally Available Control Technology (GACT) standards
- Section 112(f) - Residual Risk assessments and standards
- Section 112(k) - Integrated Urban Air Toxics strategy, including mobile source standards
- Section 112(m) - Great Waters program, as well as initiatives concerning mercury and other persistent bioaccumulative toxics (PBTs) and the impact of air deposition on water quality (including total maximum daily loading (TMDL) deposition modeling)

Other uses of the NTI include:

- Emissions trends estimates
- Community assessments to identify "hot spots" and to address environmental justice issues
- Prospective air toxics benefits assessments
- Tracking progress in meeting GPRA goals
- NATA activities

In response to the GPRA, the EPA has established goals for the air toxics program that require first a demonstration of HAP emissions reductions and, in later years, a demonstration of reduced public risk from HAP emissions. Requirements of the CAA and GPRA have established the need for a more comprehensive HAP emissions inventory effort that can be used to track progress by the EPA over time in reducing HAPs in ambient air.

How does residual risk differ from the NATA national scale assessment?

The residual risk program estimates risks remaining from exposure to HAPs from stationary sources after MACT controls are in place. If these risks are higher than what the Administrator considers acceptable then emission control beyond MACT may be required. The residual risk program is based on source categories as defined by MACT or on total emissions from facilities belonging to the source category. Major goals of the residual risk program are to estimate risks from all exposure pathways to highly exposed individuals residing near the MACT sources and to protect environmental and ecological systems. Thus, at the most fundamental level, residual risk is a very localized, detailed program. The NATA national scale assessment on the other hand, is a national level assessment, that is useful in establishing broad-scale HAP trends and risks to the population as a whole.

Table 1. NTI Data Elements Requested from State/Local Agencies

Emission Level	Data Elements
Facility	Name Address
	Identification codes, (local, state, or federal) State/local inventory id AIRS id TRI id
	Standard Industrial Classification (SIC) Codes NCAIS codes
	MACT Codes - to identify facility subject to one MACT at facility level. A list of the MACT codes and their definitions can be found at the following FTP address: ftp://www.epa.gov/pub/EmisInventory/nti_96/
	Location Latitude/Longitude or Universal Transverse Mercator (UTM) coordinates County name County Federal Information Procedures System (FIPS) code
Emission Point	Process description and identification - source classification code (SCC) for the process
	MACT code - to identify process subject to MACT standard (where multiple MACTs apply within a facility to different processes, e.g., refinery MACTs for catalytic cracking and vents)
	Release type identifier - a code that identifies whether emission is a stack or fugitive emission
	Stack height
	Stack diameter
	Stack exit velocity
	Stack temperature
	Horizontal and vertical dimensions (if nonstack emission point)
	Distance from stack to nearest point on fence line
	Control device description
	Emission estimation method code
Pollutant	Chemical Abstract Service (CAS) # and name
	Emission estimate type - actual annual emissions in tons per year is preferred; allowable, potential and maximum rates may also be entered
	Pollutant maximum hourly emission rate (peak release) from emission point

Table 2. Pollutant Assumptions Used in 1996 Modeling

HAP Name	CAS #	HAP Category Name
Acetaldehyde	75070	
Acetamide	60355	
Acetonitrile	75058	
Acetophenone	98862	
2-Acetylaminofluorene	53963	
Acrolein	107028	
Acrylamide	79061	
Acrylic acid	79107	
Acrylonitrile	107131	
Allyl chloride	107051	
4-Aminobiphenyl	92671	
Aniline	62533	
o-Anisidine	90040	
Antimony Pentafluoride	7783702	Antimony Compounds
Antimony Trichloride	10025919	Antimony Compounds
Antimony Trisulfide	1345046	Antimony Compounds
Antimony Trioxide	1309644	Antimony Compounds
Antimony & Compounds		Antimony Compounds
Antimony Oxide	1327339	Antimony Compounds
Antimony	7440360	Antimony Compounds
Arsenic & Compounds (inorganic including arsine)		Arsenic Compounds(inorganic including arsine)
Arsenic Pentoxide	1303282	Arsenic Compounds(inorganic including arsine)
Arsenic Trioxide	1327533	Arsenic Compounds(inorganic including arsine)
Arsenic Acid	1327522	Arsenic Compounds(inorganic including arsine)
Arsenic	7440382	Arsenic Compounds(inorganic including arsine)
Arsine	7784421	Arsenic Compounds(inorganic including arsine)
Asbestos	1332214	
Benzene	71432	
Benzidine	92875	
Benzotrichloride	98077	
Benzyl chloride	100447	
Beryllium Fluoride	7787497	Beryllium Compounds
Beryllium Sulfate	13510491	Beryllium Compounds
Beryllium & Compounds		Beryllium Compounds
Beryllium Oxide	1304569	Beryllium Compounds
Beryllium	7440417	Beryllium Compounds
Biphenyl	92524	
Bis(2-ethylhexyl)phthalate	117817	
Bis(chloromethyl)ether	542881	
Bromoform	75252	
1,3-Butadiene	106990	
Cadmium Chloride	10108642	Cadmium Compounds
Cadmium Nitrate	10325947	Cadmium Compounds
Cadmium Sulfate	10124364	Cadmium Compounds
Cadmium & Compounds		Cadmium Compounds
Cadmium Sulfide	1306236	Cadmium Compounds
Cadmium Iodide	7790809	Cadmium Compounds
Cadmium Oxide	1306190	Cadmium Compounds
Cadmium	7440439	Cadmium Compounds
Calcium Cyanamide	156627	
Captan	133062	
Carbaryl	63252	
Carbon disulfide	75150	
Carbon tetrachloride	56235	
Carbonyl sulfide	463581	
Catechol	120809	

HAP Name	CAS #	HAP Category Name
Chloramben	133904	
Chlordane	57749	
Chlorine	7782505	
Chloroacetic acid	79118	
2-Chloroacetophenone	532274	
Chlorobenzene	108907	
Chlorobenzilate	510156	
Chloroform	67663	
Chloromethyl methyl ether	107302	
Chloroprene	126998	
Zinc Potassium Chromate	11103869	Chromium Compounds
Chromic Sulfuric Acid*Obsolete	11115745	Chromium Compounds
Chromic Acid	13530682	Chromium Compounds
Chromic Sulfuric Acid	7738945	Chromium Compounds
Chromium Zinc Oxide	12018198	Chromium Compounds
Potassium Dichromate	7778509	Chromium Compounds
Sodium Chromate(VI)	10034829	Chromium Compounds
Ammonium Dichromate	7789095	Chromium Compounds
Chromium Chloride	10060125	Chromium Compounds
Chromium Hydroxide	1308141	Chromium Compounds
Potassium Chromate	7789006	Chromium Compounds
Sodium Dichromate	10588019	Chromium Compounds
Strontium Chromate	7789062	Chromium Compounds
Calcium Chromate	13765190	Chromium Compounds
Chromium Dioxide	12018018	Chromium Compounds
Chromium Trioxide	1333820	Chromium Compounds
Chromyl Chloride	14977618	Chromium Compounds
Lithium Chromate	14307358	Chromium Compounds
Barium Chromate	10294403	Chromium Compounds
Chromic Sulfate	10101538	Chromium Compounds
Chromium & Compounds		Chromium Compounds
Chromyl Fluoride	7788967	Chromium Compounds
Sodium Chromate	7775113	Chromium Compounds
Chromium (VI)	18540299	Chromium Compounds
Zinc Chromate	13530659	Chromium Compounds
Zinc Chromite	50922297	Chromium Compounds
Chromic Oxide	1308389	Chromium Compounds
Chromium III	16065831	Chromium Compounds
Chromium	7440473	Chromium Compounds
Cobalt Oxide (II,III)	1308061	Cobalt Compounds
Cobalt Carbonate	16842038	Cobalt Compounds
Cobalt Aluminate	1345160	Cobalt Compounds
Cobalt Hydrocarbonyl		Cobalt Compounds
Cobalt Naphtha	61789513	Cobalt Compounds
Cobalt Sulfate	10124433	Cobalt Compounds
Cobalt & Compounds		Cobalt Compounds
Cobalt Sulfide	1317426	Cobalt Compounds
Cobalt Oxide	1307966	Cobalt Compounds
Cobalt	7440484	Cobalt Compounds
Coke Oven Emissions		Coke Oven Emissions
Cresols (includes o, m, & p)/Cresylic Acids		Cresol/Cresylic acid (mixed isomers)
m-Cresol	108394	Cresol/Cresylic acid (mixed isomers)
p-Cresol	106445	Cresol/Cresylic acid (mixed isomers)
Cresol	1319773	Cresol/Cresylic acid (mixed isomers)
o-Cresol	95487	Cresol/Cresylic acid (mixed isomers)
Cumene	98828	
2-Methyl-Propanenitrile	78820	Cyanide Compounds

HAP Name	CAS #	HAP Category Name
Potassium Nickel Cyanide	14220178	Cyanide Compounds
Potassium Ferrocyanide	13943583	Cyanide Compounds
Gold Potassium Cyanide	554074	Cyanide Compounds
Potassium Cyanide	151508	Cyanide Compounds
Cyanide & Compounds		Cyanide Compounds
Hydrogen Cyanide	74908	Cyanide Compounds
Benzyl Cyanide	140294	Cyanide Compounds
Copper Cyanide	544923	Cyanide Compounds
Gold Cyanide	37187647	Cyanide Compounds
Silver Cyanide	506649	Cyanide Compounds
Sodium Cyanide	143339	Cyanide Compounds
Zinc Cyanide	557211	Cyanide Compounds
Cyanide	57125	Cyanide Compounds
2,4-Dichlorophenoxy acetic acid	94757	
DDE (1,1-dichloro-2,2-bis(p-chlorophenyl) ethylene)	72559	
Diazomethane	334883	
Dibenzofuran	132649	
1,2-Dibromo-3-chloropropane	96128	
Dibutyl phthalate	84742	
1,4-Dichlorobenzene	106467	
3,3'-Dichlorobenzidene	91941	
Dichloroethyl ether (Bis(2-chloroethyl)ether)	111444	
1,3-Dichloropropene	542756	
Dichlorvos	62737	
Diethanolamine	111422	
Diethyl sulfate	64675	
3,3'-Dimethoxybenzidine	119904	
4-Dimethylaminoazobenzene	60117	
N,N-Dimethylaniline	121697	
3,3'-Dimethylbenzidine	119937	
Dimethylcarbamoyl chloride	79447	
N,N-Dimethylformamide	68122	
1,1-Dimethyl hydrazine	57147	
Dimethyl phthalate	131113	
Dimethyl Sulfate	77781	
4,6-Dinitro-o-cresol	534521	
2,4-Dinitrophenol	51285	
2,4-Dinitrotoluene	121142	
p-Dioxane	123911	
Dioxins, total, w/o individ. isomers reported {PCDDs}		Dioxins/Furans
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	35822469	Dioxins/Furans
1,2,3,4,7,8-hexachlorodibenzo-p-dioxin	39227286	Dioxins/Furans
1,2,3,6,7,8-hexachlorodibenzo-p-dioxin	57653857	Dioxins/Furans
1,2,3,7,8,9-hexachlorodibenzo-p-dioxin	19408743	Dioxins/Furans
1,2,3,7,8-pentachlorodibenzo-p-dioxin	40321764	Dioxins/Furans
Polychlorinated dibenzo-p-dioxins, total		Dioxins/Furans
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746016	Dioxins/Furans
Total Heptachlorodibenzo-p-dioxin	37871004	Dioxins/Furans
Total Pentachlorodibenzo-p-dioxin	36088229	Dioxins/Furans
Total Tetrachlorodibenzo-p-dioxin	41903575	Dioxins/Furans
Hexachlorodibenzo-p-dioxins, total		Dioxins/Furans
Hexachlorodibenzo-p-dioxin	34465468	Dioxins/Furans
Octachlorodibenzo-p-dioxin	3268879	Dioxins/Furans
Dioxins		Dioxins/Furans
2,3,7,8-TCDD TEQ		Dioxins/Furans
1,2,3,4,6,7,8-heptachlorodibenzofuran	67562394	Dioxins/Furans
1,2,3,4,7,8,9-heptachlorodibenzofuran	55673897	Dioxins/Furans

HAP Name	CAS #	HAP Category Name
1,2,3,4,7,8-hexachlorodibenzofuran	70648269	Dioxins/Furans
1,2,3,6,7,8-hexachlorodibenzofuran	57117449	Dioxins/Furans
1,2,3,7,8,9-hexachlorodibenzofuran	72918219	Dioxins/Furans
2,3,4,6,7,8-hexachlorodibenzofuran	60851345	Dioxins/Furans
1,2,3,7,8-pentachlorodibenzofuran	57117416	Dioxins/Furans
2,3,4,7,8-pentachlorodibenzofuran	57117314	Dioxins/Furans
2,3,7,8-Tetrachlorodibenzofuran	51207319	Dioxins/Furans
Polychlorinated dibenzofurans, total		Dioxins/Furans
Dibenzofurans (chlorinated) {PCDFs}		Dioxins/Furans
Total Heptachlorodibenzofuran	38998753	Dioxins/Furans
Total Pentachlorodibenzofuran	30402154	Dioxins/Furans
Total Tetrachlorodibenzofuran	30402143	Dioxins/Furans
Total Hexachlorodibenzofuran	55684941	Dioxins/Furans
Octachlorodibenzofuran	39001020	Dioxins/Furans
1,2-Diphenylhydrazine	122667	
Epichlorohydrin(1-Chloro-2,3-Epoxypropane)	106898	
1,2-Epoxybutane	106887	
Ethyl Acrylate	140885	
Ethyl Benzene	100414	
Ethyl Carbamate Chloride (Urethane)	51796	
Ethyl Chloride (Chloroethane)	75003	
Ethylene Dibromide (Dibromoethane)	106934	
Ethylene Dichloride (1,2-Dichloroethane)	107062	
Ethylene Glycol	107211	
Ethylene Oxide	75218	
Ethylene Thiourea	96457	
Ethyleneimine (Aziridine)	151564	
Ethylidene Dichloride (1,1-Dichloroethane)	75343	
Glasswool (man-made fibers)		Fine mineral fibers
Rockwool (man-made fibers)		Fine mineral fibers
Slagwool (man-made fibers)		Fine mineral fibers
Ceramic fibers (man-made)		Fine mineral fibers
Fine Mineral Fibers		Fine mineral fibers
Formaldehyde	50000	
Ethylene Glycol Bis(2,3-Epoxy-2-Methylpropyl) Ether	3775857	Glycol ethers
Ethyleneglycolmono-2,6,8-Trimethyl-4-Nonyl Ether	10137981	Glycol ethers
(Ethylenebis(Oxyethylenenitrilo)) Tetraacetic Acid	67425	Glycol ethers
Di(Ethylene Glycol Monobutyl Ether) Phthalate	16672392	Glycol ethers
Diethyleneglycol-Mono-2-Methyl-Pentyl Ether	10143563	Glycol ethers
Ethyleneglycol Monophenyl Ether Propionate	23495127	Glycol ethers
Diethylene Glycol Mono-2-Cyanoethyl Ether	10143541	Glycol ethers
Ethyleneglycol Mono-2-Methylpentyl Ether	10137969	Glycol ethers
Ethylene Glycol Monomethyl Ether Acetate	110496	Glycol ethers
Diethylene Glycol Monoisobutyl Ether	18912806	Glycol ethers
Diethylene Glycol Ethyl Methyl Ether	1002671	Glycol ethers
Ethylene Glycol Mono-sec-Butyl Ether	7795917	Glycol ethers
Diethylene Glycol Ethylvinyl Ether	10143530	Glycol ethers
Diethylene Glycol Diglycidyl Ether	4206615	Glycol ethers
Methyl Cellosolve Acetylricinoleate	140056	Glycol ethers
Diethylene Glycol Monomethyl Ether	111773	Glycol ethers
Diethylene Glycol Monobutyl Ether	112345	Glycol ethers
Diethylene glycol monoethyl ether	111900	Glycol ethers
Diethylene Glycol Monovinyl Ether	929373	Glycol ethers
Triethylene glycol dimethyl ether	112492	Glycol ethers
Diethylene glycol dimethyl ether	111966	Glycol ethers
Ethylene Glycol Monobenzyl Ether	662082	Glycol ethers
Diethylene Glycol Divinyl Ether	764998	Glycol ethers

HAP Name	CAS #	HAP Category Name
Ethylene Glycol Monovinyl Ether	764487	Glycol ethers
2-(2,4-Hexadienyloxy)Ethanol	27310210	Glycol ethers
Ethylene Glycol Diallyl Ether	7529273	Glycol ethers
Ethylene Glycol Diethyl Ether	629141	Glycol ethers
Diethylene Glycol Dibenzoate	120558	Glycol ethers
Ethylene Glycol Methyl Ether	109864	Glycol ethers
Diethylene Glycol Dinitrate	693210	Glycol ethers
Methyl Cellosolve Acrylate	3121617	Glycol ethers
Triglycol Monobutyl Ether	143226	Glycol ethers
1-Isobutoxy-2-Propanol	23436193	Glycol ethers
2-Propoxyethyl Acetate	20706256	Glycol ethers
Butyl Carbitol Acetate	124174	Glycol ethers
2-Butoxyethyl Acetate	112072	Glycol ethers
3-Butoxy-1-Propanol	10215335	Glycol ethers
3-Methoxy-1-Propanol	1589497	Glycol ethers
Isobutyl Cellosolve	4439241	Glycol ethers
1,2-Dimethoxyethane	110714	Glycol ethers
2-(Hexyloxy)Ethanol	112254	Glycol ethers
Methoxyethyl Oleate	111104	Glycol ethers
Cellosolve Acetate	111159	Glycol ethers
Cellosolve Solvent	110805	Glycol ethers
Propyl Cellosolve	2807309	Glycol ethers
Phenyl Cellosolve	122996	Glycol ethers
Butyl Cellosolve	111762	Glycol ethers
Carbitol Acetate	112152	Glycol ethers
Methoxytriglycol	112356	Glycol ethers
N-Hexyl Carbitol	112594	Glycol ethers
Ethoxytriglycol	112505	Glycol ethers
Glycol Ethers		Glycol ethers
Heptachlor	76448	
Hexachlorobenzene	118741	
Hexachlorobutadiene	87683	
1,2,3,4,5,6-Hexachlorocyclyhexane	58899	
Hexachlorocyclopentadiene	77474	
Hexachloroethane	67721	
Hexamethylene diisocyanate	822060	
Hexamethylphosphoramide	680319	
Hexane	110543	
Hydrazine	302012	
Hydrochloric Acid (Hydrogen chloride)	7647010	
Hydrogen Fluoride (Hydrofluoric Acid)	7664393	
Hydroquinone	123319	
Isophorone	78591	
Lead Compounds (other than inorganic)		Lead Compounds
Lead Compounds (inorganic)		Lead Compounds
Lead Titanate Zircon	12626812	Lead Compounds
Lead Chromate Oxide	18454121	Lead Compounds
Lead (II, IV) Oxide	1314416	Lead Compounds
Lead Fluoroborate	13814965	Lead Compounds
Lead Neodecanoate	27253287	Lead Compounds
Lead Naphthenate	61790145	Lead Compounds
Lead Subacetate	1335326	Lead Compounds
Lead Arsenite	10031137	Lead Compounds
Lead Phosphate	7446277	Lead Compounds
Lead Titanate	12060003	Lead Compounds
Lead Arsenate	7784409	Lead Compounds
Lead Carbonate	598630	Lead Compounds

HAP Name	CAS #	HAP Category Name
Lead Chromate	7758976	Lead Compounds
Lead Nitrate	10099748	Lead Compounds
Lead Stearate	7428480	Lead Compounds
Tetraethyl Lead	78002	Lead Compounds
Lead & Compounds		Lead Compounds
Lead Dioxide	1309600	Lead Compounds
Lead Dioxide	1317368	Lead Compounds
Lead Sulfate	7446142	Lead Compounds
Lead Acetate	301042	Lead Compounds
Alkylated Lead		Lead Compounds
Lead Dioxide		Lead Compounds
Lead	7439921	Lead Compounds
Maleic Anhydride	108316	
Manganese Naphthenate	1336932	Manganese Compounds
Manganesehypophosphide	7783166	Manganese Compounds
Manganese Tetroxide	1317357	Manganese Compounds
Manganese Nitrate	10377669	Manganese Compounds
Manganese & Compounds		Manganese Compounds
Manganese Dioxide	1313139	Manganese Compounds
Manganese Sulfate	7785877	Manganese Compounds
Manganese Tallate	8030704	Manganese Compounds
Manganese	7439965	Manganese Compounds
Mercury (Organic)	22967926	Mercury Compounds
Mercury Acetatophen	62384	Mercury Compounds
Mercuric chloride	7487947	Mercury Compounds
Mercury & Compounds		Mercury Compounds
Methyl Mercury	593748	Mercury Compounds
Mercury	7439976	Mercury Compounds
Methanol	67561	
Methoxychlor	72435	
Methyl Bromide (Bromomethane)	74839	
Methyl Chloride (Chloromethane)	74873	
Methyl Chloroform (1,1,1-Trichloroethane)	71556	
Methyl Ethyl Ketone (2-Butanone)	78933	
Methyl Hydrazine	60344	
Methyl Iodide (Iodomethane)	74884	
Methyl Isobutyl Ketone (Hexone)	108101	
Methyl Isocyanate	624839	
Methyl Methacrylate	80626	
Methyl tert-butyl ether	1634044	
Methylene Chloride (Dichloromethane)	75092	
4,4'-Methylenebis(2-chloraniline)	101144	
4,4'-Methylenedianiline	101779	
4,4'-Methylenediphenyl diisocyanate (MDI)	101688	
Naphthalene	91203	
Nickel (II) Sulfate Hexahydrate	10101970	Nickel Compounds
Nickel Diacetate Tet	6018899	Nickel Compounds
Nickel Subsulfide	12035722	Nickel Compounds
Nickel Hydroxide	12054487	Nickel Compounds
Nickel Sulfamate	13770893	Nickel Compounds
Nickel Carbonate	3333393	Nickel Compounds
Nickel Carbonyl	13463393	Nickel Compounds
Nickel Refinery Dust		Nickel Compounds
Nickel Bromide	13462889	Nickel Compounds
Nickel Carbide	12710360	Nickel Compounds
Nickel Chloride	7718549	Nickel Compounds
Nickel Nitrate	13138459	Nickel Compounds

HAP Name	CAS #	HAP Category Name
Nickel Peroxide	1314063	Nickel Compounds
Nickel & Compounds		Nickel Compounds
Nickel Sulfate	7786814	Nickel Compounds
Nickel Acetate	373024	Nickel Compounds
Nickel Oxide	1313991	Nickel Compounds
Nickelocene	1271289	Nickel Compounds
Nickel	7440020	Nickel Compounds
Nitrobenzene	98953	
4-Nitrobiphenyl	92933	
4-Nitrophenol	100027	
2-Nitropropane	79469	
N-Nitrosodimethylamine	62759	
N-Nitrosomorpholine	59892	
N-Nitroso-N-methylurea	684935	
Parathion	56382	
Pentachloronitrobenzene	82688	
Pentachlorophenol	87865	
Phenol	108952	
p-Phenylenediamine	106503	
Phosgene	75445	
Phosphine	7803512	
Phosphorus	7723140	
Phthalic Anhydride	85449	
Polychlorinated Biphenyls (Arochlor)	1336363	
Benzo[b]fluoranthene	205992	7-PAH
Dibenzo[a,h]anthracene	53703	7-PAH
Benzo[k]fluoranthene	207089	7-PAH
Benzo[b+k]fluoranthene		7-PAH
Indeno[1,2,3-c,d]pyrene	193395	7-PAH
Benz[a]anthracene	56553	7-PAH
Benzo[a]pyrene	50328	7-PAH
Chrysene	218019	7-PAH
7-PAH		7-PAH
7,12-Dimethylbenz[a]anthracene	57976	Polycyclic Organic Matter
Benzo(g,h,i)fluoranthene	203123	Polycyclic Organic Matter
Indeno[1,2,3-c,d]pyrene	193395	Polycyclic Organic Matter
Polycyclic Organic Matter		Polycyclic Organic Matter
Benzo[g,h,i,]perylene	191242	Polycyclic Organic Matter
Dibenzo[a,h]anthracene	53703	Polycyclic Organic Matter
Benzo[b]fluoranthene	205992	Polycyclic Organic Matter
Benzo[k]fluoranthene	207089	Polycyclic Organic Matter
Dibenzo[a,j]acridine	224420	Polycyclic Organic Matter
1,6-Dinitropyrene	42397648	Polycyclic Organic Matter
1,8-Dinitropyrene	42397659	Polycyclic Organic Matter
3-Methylcholanthrene	56495	Polycyclic Organic Matter
Benzo[b+k]fluoranthene	102	Polycyclic Organic Matter
1-methylnaphthalene	90120	Polycyclic Organic Matter
2-chloronaphthalene	91587	Polycyclic Organic Matter
2-Methylnaphthalene	91576	Polycyclic Organic Matter
Dibenzo[a,e]pyrene	192654	Polycyclic Organic Matter
Dibenzo[a,h]pyrene	189640	Polycyclic Organic Matter
Dibenzo[a,i]pyrene	189559	Polycyclic Organic Matter
Dibenzo[a,l]pyrene	191300	Polycyclic Organic Matter
5-Methylchrysene	3697243	Polycyclic Organic Matter
6-Nitrochrysene	7496028	Polycyclic Organic Matter
Benz[a]anthracene	56553	Polycyclic Organic Matter
2-Nitrofluorene	607578	Polycyclic Organic Matter

HAP Name	CAS #	HAP Category Name
B[j]fluoranthen	205823	Polycyclic Organic Matter
NAPHTHENES (CYCLO)		Polycyclic Organic Matter
1-Nitropyrene	5522430	Polycyclic Organic Matter
Acenaphthylene	208968	Polycyclic Organic Matter
Benzo[e]pyrene	192972	Polycyclic Organic Matter
Benzo[a]pyrene	50328	Polycyclic Organic Matter
Fluoranthene	206440	Polycyclic Organic Matter
Acenaphthene	83329	Polycyclic Organic Matter
Phenanthrene	85018	Polycyclic Organic Matter
Anthracene	120127	Polycyclic Organic Matter
Chrysene	218019	Polycyclic Organic Matter
Perylene	198550	Polycyclic Organic Matter
Fluorene	86737	Polycyclic Organic Matter
PAH, total		Polycyclic Organic Matter
Pyrene	129000	Polycyclic Organic Matter
16-PAH		Polycyclic Organic Matter
Benzofluoranthenes	56832736	Polycyclic Organic Matter
1,3-Propanesultone	1120714	
beta-Propiolactone	57578	
Propionaldehyde	123386	
Propoxur	114261	
Propylene Dichloride (1,2-Dichloride)	78875	
Propylene Oxide	75569	
1,2-Propylenimine	75558	
Quinoline	91225	
Quinone	106514	
Radionuclides (including radon)		Radionuclides (including radon)
Radon and its decay products		Radionuclides (including radon)
Iodine-131	24267569	Radionuclides (including radon)
Radionuclides		Radionuclides (including radon)
Selenium Monosulfide	7446346	Selenium Compounds
Selenium Disulfide	7488564	Selenium Compounds
Selenium & Compounds		Selenium Compounds
Selenium Dioxide	7446084	Selenium Compounds
SELENIUM OXIDE	12640890	Selenium Compounds
Selenium	7782492	Selenium Compounds
Styrene	100425	
Styrene Oxide	96093	
1,1,2,2-Tetrachloroethane	79345	
Tetrachloroethylene (Perchloroethylene)	127184	
Titanium Tetrachloride	7550450	
Toluene	108883	
Toluene-2,4-diamine	95807	
2,4-Toluene diisocyanate	584849	
o-Toluidine	95534	
Toxaphene (chlorinated camphene)	8001352	
1,2,4-Trichlorobenzene	120821	
1,1,2-Trichloroethane	79005	
Trichloroethylene	79016	
2,4,5-Trichlorophenol	95954	
2,4,6-Trichlorophenol	88062	
Triethylamine	121448	
Trifluralin	1582098	
2,2,4-Trimethylpentane	540841	
Vinyl acetate	108054	
Vinyl bromide	593602	
Vinyl chloride	75014	

HAP Name	CAS #	HAP Category Name
Vinylidene chloride	75354	
Xylenes (mixture of o, m, and p isomers)	1330207	Xylenes (mixed isomers)
m-Xylene	108383	Xylenes (mixed isomers)
p-Xylene	106423	Xylenes (mixed isomers)
o-Xylene	95476	Xylenes (mixed isomers)

Table 3. POM Compounds

7-PAH	POM Compounds for which we have cancer assessments - includes 7-PAH
Benz(a)anthracene	Carbazole
Benzo(a)pyrene	Dibenz[a,h]acridine
Benzo(b)fluoranthene	Dibenz[a,j]acridine
Benzo(k)fluoranthene	7H-Dibenzo[c,g]carbazole
Chrysene	Dibenzo[a,e]pyrene
Dibenz(a, h)anthracene	Dibenzo[a,i]pyrene
Indeno(1,2,3-cd)pyrene	Dibenzo[a,l]pyrene
	7,12-Dimethylbenz[a]anthracene
	1,6-Dinitropyrene
	1,8-Dinitropyrene
	3-Methylcholanthrene
	5-Methylchrysene
	5-Nitroacenaphthene
	6-Nitrochrysene
	2-Nitrofluorene
	2-Nitrofluorene
	1-Nitropyrene
	4-Nitropyrene

Table 4. List of Compounds Often Mistaken as Glycol Ethers

Compound	CAS Number
1,1- Dimethoxyethane	534156
1-Ethoxy-2-propanol	1569024
3-Ethoxy-1-propanol	111353
Diethylene glycol	111466
Diethylene glycol di(3-aminopropyl) ether	4246519
Dipropylene glycol monomethyl ether	34590948
Glycols, polyethylene, polypropylene monobutylether (nonionic)	9038953
Isopropyl glycol	109591
Nonyl phenyl polyethylene glycol ether	9016459
Propylene glycol methyl ether acetate	108656
Propylene glycol monomethyl ether	107982
Propylene glycol t-butyl ether	
Triethylene glycol	112276